LABORATORY BULLETIN

DEPARTMENT OF HEALTH & ENVIRONMENTAL SCIENCES, HELENA, MONTANA

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INFLUENZA
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INFLUENZA

Nationwide

Four types of influenza virus have been isolated in the United States during the current influenza season: A/Victoria/3/75, A/Texas/1/77, A/USSR/90/77 and B/Hong Kong/5/72. Both A/Texas and A/Victoria have caused widespread outbreaks of influenza throughout the country. B/Hong Kong has been associated only with sporadic, localized outbreaks.

The most striking event of this season was the recent isolation of A/USSR, the agent of "Russian flu", from an outbreak in Cheyenne, Wyoming. Pandemic A/USSR infection has been reported throughout Asia and Europe, but the Cheyenne isolates were the first in the United States.

While A/Victoria and A/Texas are similar viruses sharing the Hemagglutinin / Neuraminidase antigenic subtype H3N2, A/USSR is an H1N1 virus sharing similarities with epidemic strains of the 1940's and 1950's, including A/FM/47 and A/FW/1/50. Therefore, some segments of the population have had prior immunologic experience with A/USSR-like viruses. A recent CDC sero-survey showed the following age distribution for persons possessing HI antibody to H1N1 viruses:

Age group	Percent population with anti-H1N1 HI titer ≥40
<24 years	0
24-33	37%
34-50	17%
>50	5%

An interesting feature of these data is that individuals less than 20 years of age and elderly individuals, who would appear to be most susceptible to H1N1 virus infection based on their low antibody prevalence, had a very low frequency of heterologous A/USSR antibody production following A/New Jersey/76 ("swine flu") vaccination. In other words, the A/New Jersey (Hsw1N1) immunization presumably will confer no cross-immunity to A/USSR.

Montana

Several outbreaks of influenza-like illness have been reported from around Montana. Influenza virus A/Texas/1/77 has been isolated at the State Laboratory from three Missoula patients. Seroconversions to A/Texas have also been detected from Fort Benton patients. To date, no A/USSR isolates or seroconversions have been obtained, but all specimens from suspected influenza patients are being tested for A/USSR in addition to other influenza viruses. Because the first United States outbreak of Russian flu occurred in Wyoming, it seems likely that A/USSR will eventually be encountered in Montana.

Response to the 1978 Montana Influenza Surveillance Program has been excellent. The cooperation of participating sentinel physicians and medical laboratory personnel around the State has helped greatly in tracking influenza in Montana. New developments will be reported in this Bulletin as they arise.

RUBELLA SEROLOGY : DECENTRALIZATION AND LABORATORY APPROVAL

Premarital and prenatal testing for antibody to rubella virus is required by law for all women under fifty years of age who are capable of bearing children (MAC 16-689.1 and 16-414.1). The law states that these tests must be performed by a laboratory approved by the State Department of Health and Environmental Sciences. At present, virtually all these tests are being performed at the State Laboratory. The primary reason for this centralized testing is the specialized nature of the hemagglutination inhibition (HI) test used to detect anti-rubella virus antibody. The HI test is not a practical laboratory procedure for clinical laboratories performing a small number of rubella serologies.

However, a newer test, the indirect hemagglutination (IHA) test was recently evaluated in our laboratory. We found it to be quick, accurate, economical and reliable for rubella screens, and feel we can endorse its use in local clinical laboratories. The rubella IHA test which we evaluated was a commercial kit produced by Abbott Laboratories. While we cannot recommend use of any specific commercial product, we can guarantee the validity and extreme simplicity of the Abbott Rubacell test in screening for antibody to rubella virus. In duplicate tests of 388 sera, Rubacell (IHA) and HI results were found compatible in 99.2% (385) of these specimens. Total materials cost per test is approximately ninety-five cents. At least two other states (Colorado and Pennsylvania) have performed similar studies with similar results. The Center for Disease Control has reported their evaluation of Rubacell; a copy of that document is available from our Laboratory upon request. IHA cannot be used for clinical diagnosis of rubella because IHA antibody to rubella is not detectable in serum until at least four weeks after onset of symptoms. HI antibody appears much sooner. Therefore, HI will remain an important laboratory test for diagnosis of clinical rubella. However, we feel that IHA is technically superior as a screening test for premarital and prenatal serology.

We propose that many clinical laboratories could now offer prompt premarital and prenatal rubella serology testing at a nominal cost by performance of the IHA test. This proposal has the further advantage of eliminating the variables of specimen handling and transportation to the State Laboratory.

Laboratories which are now approved for syphilis serology could easily add rubella testing to their diagnostic regimen and provide same-day service for premarital and prenatal examinations. Because we are required to approve laboratories engaged in premarital and prenatal examinations, proficiency testing for rubella serology may be necessary for those laboratories choosing to perform the IHA test.

We wish to emphasize that the State Laboratory will, of course, continue to offer premarital and prenatal rubella serological testing as well as HI diagnosis of clinical rubella. However, we feel that these screens for anti-rubella antibody can now be done most practically and efficiently in clinical laboratories.

PLEASE NOTE:

Approval to perform prenatal and premarital rubella serologies may be obtained by participation in the State Laboratory proficiency evaluation program. An application for approval may be obtained by contacting : State Microbiology Laboratory, Capitol Station, Helena, Montana 59601.

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AND ENVIRONMENTAL SCIENCES
HELENA, MONTANA 59601
LABORATORY DIVISION